

3.0006 Notes And Observations On The Buprestidae¹ (Coleoptera)

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Field observations, collections and information obtained from laboratory rearings during the past several years have yielded biological and ecological information about several buprestids that appears to be worthy of record.

One such observation, first noted among some of the *Chrysobothris* in southern Oregon during the summer of 1939, involved a rather rapid thumping of the abdomen of the adult against twigs of the host plant (1). The significance of this behavior was not immediately apparent, nor has an explanation of the activity been seen in the literature. In the fall of 1966, I returned with wood containing larvae from several points visited, one being the Florida Keys. The trees, known as the Australian pine (*Casuarina equisetifolia* L.) had been badly broken by a hurricane and were extensively infested with buprestid larvae. During August and September 1967 and again in 1968, specimens of *Polycesta abdita* Barr emerged. Since the wood was not caged, specimens escaped into the laboratory and concealed themselves on and under chairs, tables, in cupboards, etc., and if not found until the day following emergence, they displayed the same tapping activity noted in *Chrysobothris*. However, the tapping of *P. abdita* was readily audible throughout the room, primarily because of its larger size and the resonating quality of the furniture. The action was performed by both sexes, and it became obvious that the tapping was a sexual activity used in locating a mate. Two or more specimens on the same object, such as a chair or table, increased both their tapping and activity, both sexes searching about for the respondent to their signals, however, the male response was the more apparent. It was also possible to locate unseen specimens by tapping with a pencil rather rapidly, but gently, on a table or chair. This produced a vibration of about the same quality and pitch as that of the insect. More often than not, an answer would be received from the free specimens. It would be interesting to know to what extent this may occur in other species in the family.

Males of a number of species of the genus *Buprestis* are seldom collected, and then usually by accident (6). In mid-July of 1966 along highway 20-38 near Lost Lake, Linn County, Oregon, while observing the activity of female *Buprestis langi* Mann. on recently cut Douglas' fir (*Pseudotsuga menziesii* (Mirb.) Franco) logs, one was noted to fly into a nearby clump of willows. Her movement caught my attention and she was kept under surveillance. Within a few minutes a second beetle was observed directing its flight and attention toward the exact location of this female. These were collected, and as presumed, one was a male. My entire attention was then directed to the willow clump. In a little more than an hour, seven males were collected, more than in twenty years of beating and sweeping. Further collecting now permits the conclusion

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that the females oviposit on logs of the Douglas fir and yellow pine (*Pinus ponderosa* Dougl.), flying to nearby plants for mating. This no doubt, explains the fact that willows of our area have been proposed as host plants. On two occasions I have beaten *B. langi* from willows, though once a mating pair was beaten from a black cottonwood shrub (*Populus trichocarpa* T. & G.).

In another member of this genus, *B. adjecta* LeC., males seldom occur in collections. In 1965 on Mary's Peak, Benton County, Oregon, in an area where the 12 October 1962 storm had blown down a mature stand of Douglas fir, a pair of *Buprestis adjecta* was beaten from a clump of ocean spray (*Holodiscus discolor* (Pursh.) Maxim.). Females have been observed to fly into bushes of ocean spray and vine maple (*Acer circinatum* Pursh.), and though a good many females have been collected on logs, I have taken only the one male. I have also collected many females of *B. gibbsi* LeC., but no males. Females come readily to standing or felled dead, weatherbeaten Oregon oak (*Quercus garryana* Dougl.). It appears that males remain in the upper foliage of the oaks where they await the arrival of the females. Males of *gibbsi* have been taken in weevil traps (4) along woods north of Corvallis, but to my knowledge, none have been captured in conjunction with females. On the other hand, males of *B. aurulenta* L., *subornata* LeC., *rusticorum* Kby., and *laeviventris* LeC., are commonly found crawling over recently felled timber, apparently in search of females, since mating pairs are occasionally found.

Poecilonota montana Chamb. is a common inhabitant of living black cottonwood trees in which the larvae tunnel through the bark. Evans (5) proposed that the larvae of *Poecilonota* worked in the wood, based on information of previous writers, but no evidence of *montana* extending their tunnels into the wood has been found. With chisel and hammer I have followed the tunnels from the pupal cell, near the surface of the bark, back through a relatively short distance (seldom more than 6 to 8 inches), making the galleries remarkably short of such a large insect. The majority of the activity is near the outer surface of the living phloem, where they feed throughout most of their larval life. Trees examined ranged from around 14 inches up to nearly 24 inches DBH, and emergence openings are relatively common. Adults begin to emerge in mid-July and continue active through August. During the warm afternoons they descend to the lower 15 to 20 feet of most trees, probably because of the thicker bark, seeking crevices in which to oviposit. Here they can be easily collected, often without the use of a net. If disturbed, they generally drop from the trunk and fly off a short distance, usually into the grass. However, if the beetles are eight or more feet above the ground when disturbed, they may be able to take wing and reach a neighboring tree, occasionally out of reach. During the summer of 1964, my wife and I collected more than 50 specimens from eight trees along a roadside approximately five miles southeast of Corvallis, indicating that in our area at least, the species is rather common.

Trachykele blondeli Mars. occurs abundantly throughout the Northwest where it mines the outer sapwood of the western red cedar (*Thuja plicata* Donn.). It is reported to have been taken from several other trees, especially

the incense cedar (*Libocedrus decurrens* Torr.) (2, 3) but careful examination of many of these trees has thus far produced no evidence of its use by this beetle. However, the species does use the Port Orford cedar (*Chamaecyparis lawsoniana* (Murr.) Parl.) as a host, 23 typical specimens having been cut out of this plant on March 14, 1966. They were taken from a scar in a dying tree in the Elk Creek Recreation Area along highway 199, about five miles south of the Oregon-California border. The tree, about 30 inches diameter DBH, had been injured, apparently by a bulldozer or logging truck, and the larvae had entered through the scar, which was approximately eighteen inches square and about four to five feet above the ground. Other Port Orford cedars in the area also had emergence holes in dead limbs, and one specimen was taken from its pupal cell in the dead top of a tree blown down by the wind. It is of special interest that this species has also moved into ornamental cedars (*Thuja occidentalis* L. pyramidal); a dead and living specimen have been cut out of stems of plants growing on the Oregon State University campus, and emergence tunnels have been noted in trees planted in a cemetery in Salem, Oregon. *T. blondeli*, and in fact, all members of this genus, seldom appear in collections. Adults apparently spend most of their time at considerable heights in trees, and may also be wary of the approach of man (7), yet, judging from the numbers cut out of their pupal cells, I am convinced that they are relatively abundant.

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